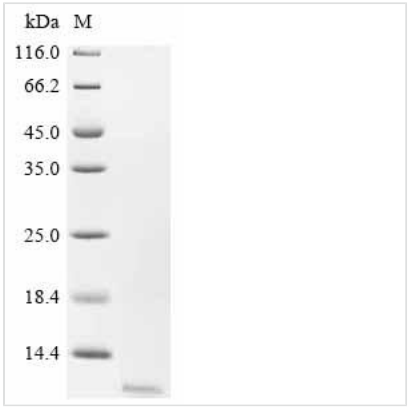
Recombinant Mouse Glucagon (Gcg), partial

Product Code	CSB-YP009315MO
Abbreviation	Recombinant Mouse Gcg protein, partial
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P55095
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Mouse Glucagon (Gcg), partial
Immunogen Species	Mus musculus (Mouse)
Sensitivity	Not Test
Purity	Greater than 95% as determined by SDS-PAGE.
Sequence	HALQDTEENPRSFPASQTEAHEDPDEMNEDKRHSQGTFTSDYSKYLDSRRAQDFVQWLMNTKRNRNNIA
Research Area	Metabolism
Source	Yeast
Target Names	Gcg
Expression Region	21-89aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	9.7 kDa
Protein Length	Partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

The process of producing the recombinant mouse Glucagon (Gcg) with an N-terminal 6xHis-tag in yeast starts with cloning the target gene, linked with the 6xHis-tag sequence, into an expression vector, followed by transformation into yeast cells. The target gene corresponds to the 21-89aa of the mouse Gcg. After induction of protein expression, the yeast cells are lysed to release the 6xHis-tagged recombinant Gcg protein, which is purified using nickel affinity chromatography. Its purity is analyzed by SDS-PAGE, reaching over 95%.

Glucagon (Gcg) is a peptide hormone that plays a crucial role in regulating glucose metabolism in the body. It is primarily produced by the α-cells of the pancreas and acts to elevate blood glucose levels by stimulating the release of glucose from the liver and promoting glycogen breakdown [1]. Glucagon is a potent regulator of energy balance, glucose, and lipid metabolism, highlighting its significance in maintaining metabolic homeostasis [2].

Research has shown that glucagon deficiency can have metabolic consequences, emphasizing the importance of this hormone in overall metabolic health [3]. Studies have also demonstrated that glucagon stimulates exocytosis in pancreatic α-cells by binding to glucagon receptors, indicating its role in regulating insulin and glucagon secretion [4].

Furthermore, the transcription factor MafB has been identified as critical for the production and secretion of glucagon in pancreatic α-cells [5]. MafB is essential for glucagon production and secretion postnatally, highlighting its significance in the maturation of pancreatic islets [6][4].

References:

[1] X. Ma, Y. Zhang, J. Gromada, S. Sewing, P. Berggren, K. Buschardet al., Glucagon stimulates exocytosis in mouse and rat pancreatic α-cells by binding to glucagon receptors, Molecular Endocrinology, vol. 19, no. 1, p. 198-212, 2005. https://doi.org/10.1210/me.2004-0059
[2] T. Kim, S. Nason, C. Holleman, M. Pepin, L. Wilson, T. Berryhillet al., Glucagon receptor signaling regulates energy metabolism via hepatic farnesoid x receptor and fibroblast growth factor 21, Diabetes, vol. 67, no. 9, p. 1773-1782, 2018. https://doi.org/10.2337/db17-1502
[3] Y. Hayashi, Metabolic impact of glucagon deficiency, Diabetes Obesity and Metabolism, vol. 13, no. s1, p. 151-157, 2011. https://doi.org/10.1111/j.1463-1326.2011.01456.x
[4] M. Katoh, Y. Jung, C. Ugboma, M. Shimbo, A. Kuno, W. Bashaet al., Mafb is critical for glucagon production and secretion in mouse pancreatic α cells in vivo, Molecular and Cellular Biology, vol. 38, no. 8, 2018. https://doi.org/10.1128/mcb.00504-17
[5] C. Shiota, K. Prasadan, P. Guo, Y. El-Gohary, J. Wiersch, X. Xiaoet al., A-cells are dispensable in postnatal morphogenesis and maturation of mouse pancreatic islets, Ajp Endocrinology and Metabolism, vol. 305, no. 8, p. E1030-E1040, 2013. https://doi.org/10.1152/ajpendo.00022.2013
[6] Y. Chang, M. Katoh, A. Abdellatif, G. Xiafukaiti, A. Elzeftawy, M. Ojimaet al., Uncovering the role of mafb in glucagon production and secretion in pancreatic

α-cells using a new α-cell-specific <i>mafb</i> conditional knockout mouse model, Experimental Animals, vol. 69, no. 2, p. 178-188, 2020. https://doi.org/10.1538/expanim.19-0105

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.